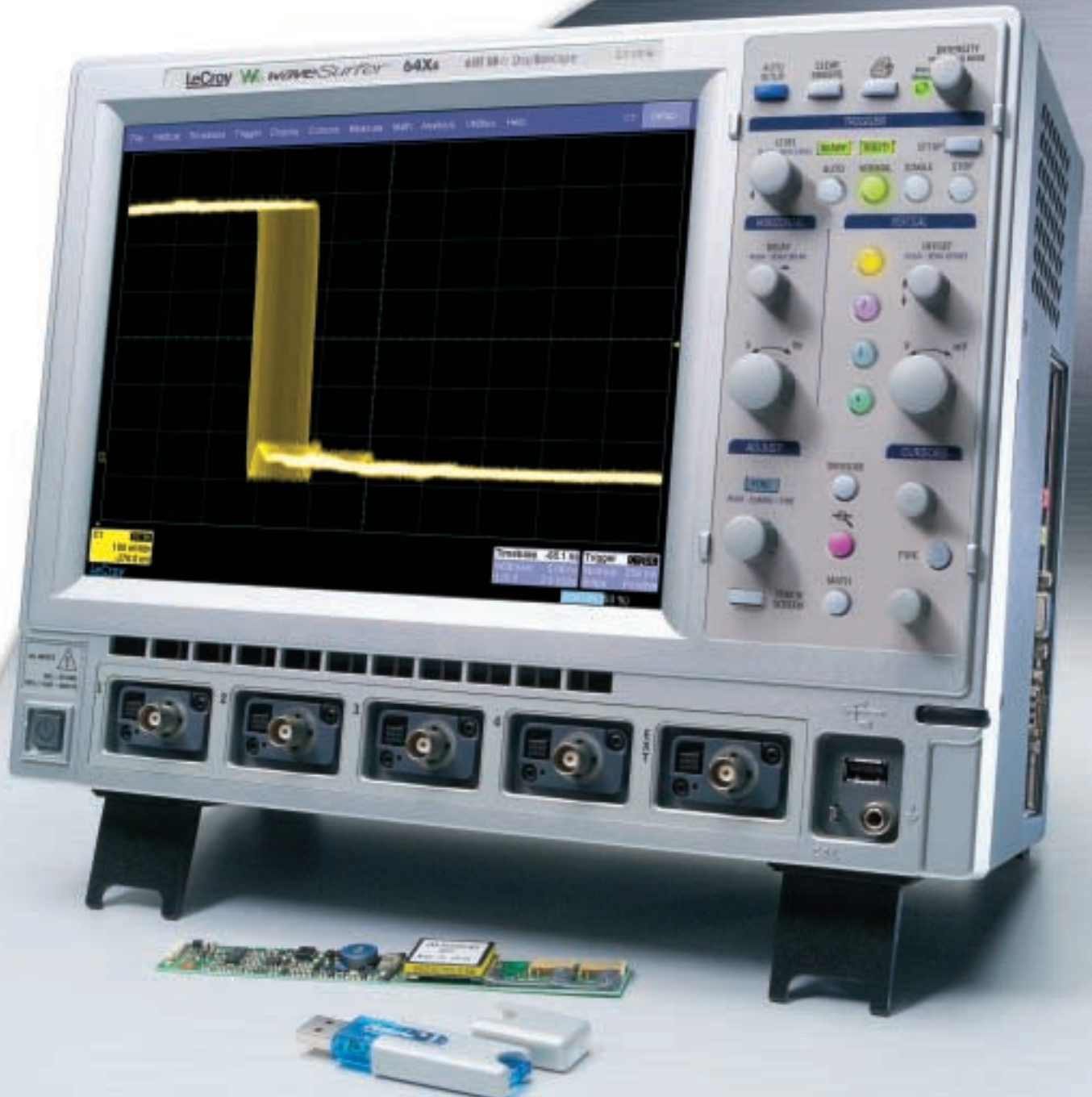# LeCroy

WAVESURFER® XS SERIES

The Everyday Oscilloscope that's Easy to Use

The New WaveSurfer Xs Oscilloscope for Effortless Everyday Testing

In today's busy test and measurement environment, there's now a refreshing solution for routine circuit testing and debugging. It's the new WaveSurfer Xs oscilloscope. Designed to make testing circuits virtually "friction free", this new oscilloscope offers an easy-to-learn and use interface, a big screen, small footprint and very attractive pricing in the 400–600 MHz range. Here's how good it really is.

A Super Fit with your Working Style

The WaveSurfer Xs oscilloscope is designed for easy and reliable testing, day in and day out. Its simple, easy-to-use, touch-screen interface and its dramatically improved sample rate, will quickly earn it a permanent place on your bench.

A Marvelous Fit to Your Bench

The rules of scope design have been radically altered—in your favor. The large screen ensures that every nuance of your signal is clear, sharp and easy for you to interpret. The small footprint lets you keep it within easy reach. It's an optimum configuration.

A Match to Your Budget

You'll be hard pressed to find a scope in its class that offers a better combination of value and performance. With 2-channel and 4-channel configurations and bandwidths of 400 MHz and 600 MHz, the new WaveSurfer Xs oscilloscope can sample waveforms up to 2.5 GS/s.
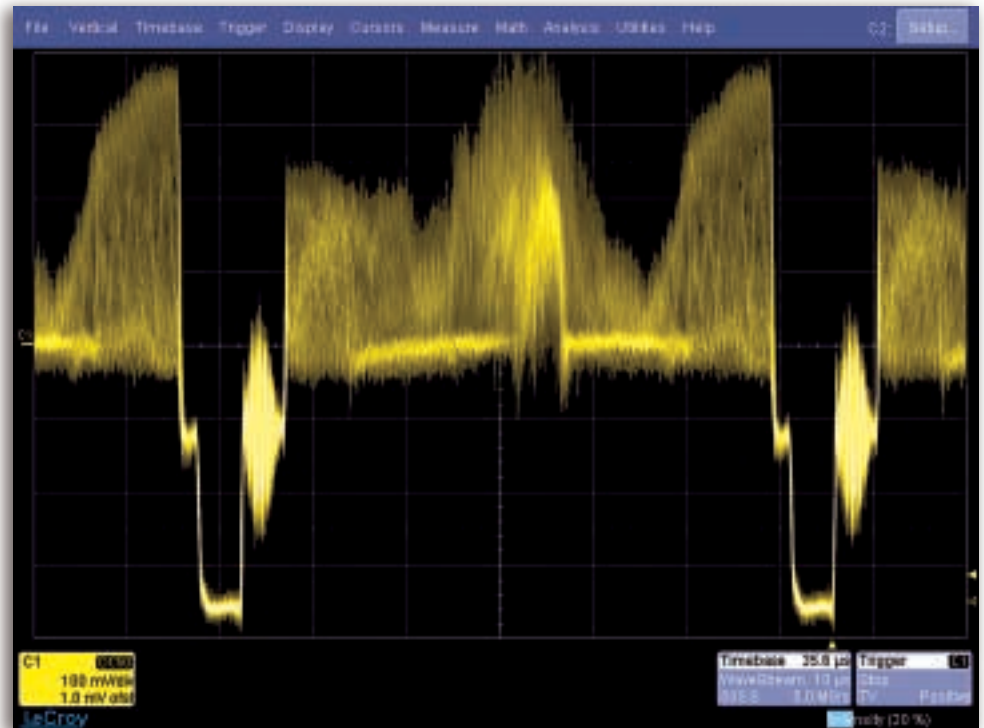
Analog Oscilloscope-like Display Speed

LeCroy WaveStream™ Fast Viewing Mode

The new LeCroy WaveStream fast viewing mode provides a vibrant, intensity graded (256 levels) display with a fast update to closely simulate the look and feel of an analog oscilloscope. The WaveStream mode is most helpful in viewing signals that have signal jitter or signal anomalies. Since the sample rate in WaveStream mode can be as high as 2.5 GS/s, it is an excellent runt or glitch finder.
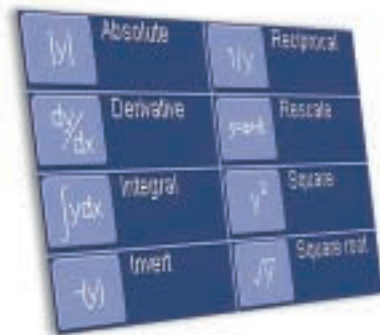

Extend WaveSurfer Xs Capa

Mixed Signal Oscilloscope Option

This option creates the first mixed signal oscilloscope that combines 4 analog channels with 32 digital channels (see page 8).
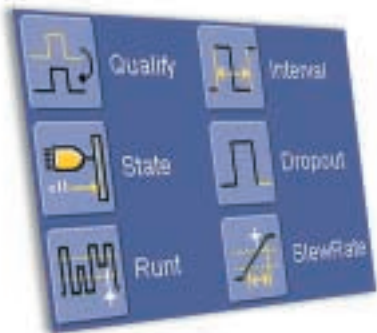
MathSurfer

Additional math functions, chained math functions, rescaling of units, and enhanced FFT capability.

Timing jitter is often visually assessed to understand approximate behavior. WaveStream mode makes it easy to understand jitter on edges or in eye diagrams. WaveStream mode also excels in allowing you to relate composite (WaveStream) to single-event (real-time sampled) behaviors. Just capture in WaveStream mode, toggle to view or zoom a single trace, then toggle back to WaveStream mode.

bilities with these Options

Advanced Trigger Package

Includes runt, slew rate, qualified edge, qualified state, interval, and dropout triggers.

ET-PMT Electrical Testing

Transforms the WaveSurfer Xs into a dedicated mask testing device for manufacturing and field testing of electrical telecom signals.

The Interface Redefines Simplicity

The WaveSurfer Xs interface and its operations have all been carefully considered to provide the busy engineer with a GUI that is smooth, transparent, and easy to use. Whether you are triggering on a runt or looking for an anomaly, **most common measurements are only one touch away. When it comes to easy running, the WaveSurfer Xs oscilloscope sets the standard.**
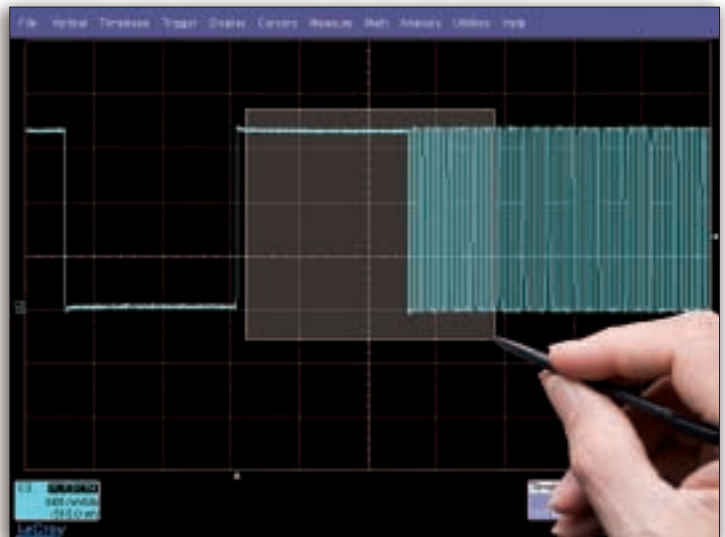
Smooth Cursor Control

You can use dedicated front panel cursor knobs to position your cursors at any time without invoking special menus. You can quickly choose your cursor by using the "type" button. Apply them to any signal, zoom, or math trace. You won't find an easier-to-use set of cursors on any other oscilloscope.

One Touch Access to 23 Measurements

The WaveSurfer Xs oscilloscope fits your working style as comfortably as it fits your bench. Twenty-three basic measurements have been built in to give you quick answers.

1. Access the measure menu from the front panel.

2. Select your measurement (and source, as necessary).

3. Measurements appear automatically below the grid and never obscure your signals.
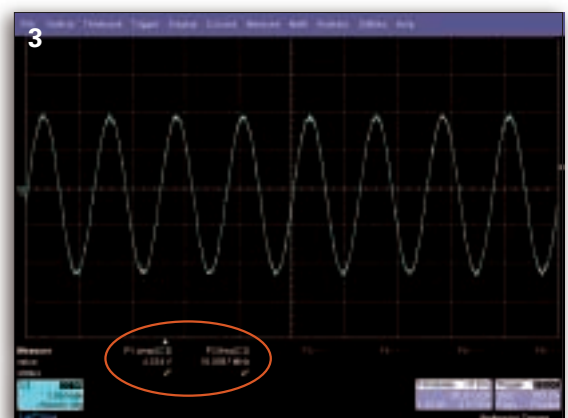
Simple Zooming and Math

Zooming is so easy with this scope — simply draw a box around the area to be zoomed (or use the front panel QuickZoom button). Waveform math is also built in and easily applied. In addition, a power spectrum FFT is standard. It can be quickly invoked and easily set up, even by someone not familiar with FFTs.

Easy Fit to your Work...
Perfect Match to Your Budget

The new WaveSurfer Xs oscilloscope is all about making everyday testing simpler and easier. The intuitive GUI readily accomplishes routine testing with its uncomplicated operation and fast response to commands. The simple interface is designed so that all the common measurements and functions are usually just one touch away. Now you can do more in less time.

1. Touch Screen with Built-in Stylus

The most time-efficient user interface has been improved with this built-in stylus. Many common operations are just one touch away.

2. Dedicated Cursor Knobs

WaveSurfer Xs cursors are simple to work with—select the type of cursor, position them on the signal, and read values without ever opening a menu.

3. Bright, 10.4" Display

You'll love the fantastic large, bright screen, its viewing angle and its easy touch-screen interface.

4. Only 15 cm (6") Deep

It's the most space-efficient oscilloscope for your bench, and it doesn't require you to sacrifice performance.

5. Local Language User Interface

Select one of 10 language preferences and view it in the software user interface without rebooting the oscilloscope. Add a front panel overlay with your local language.
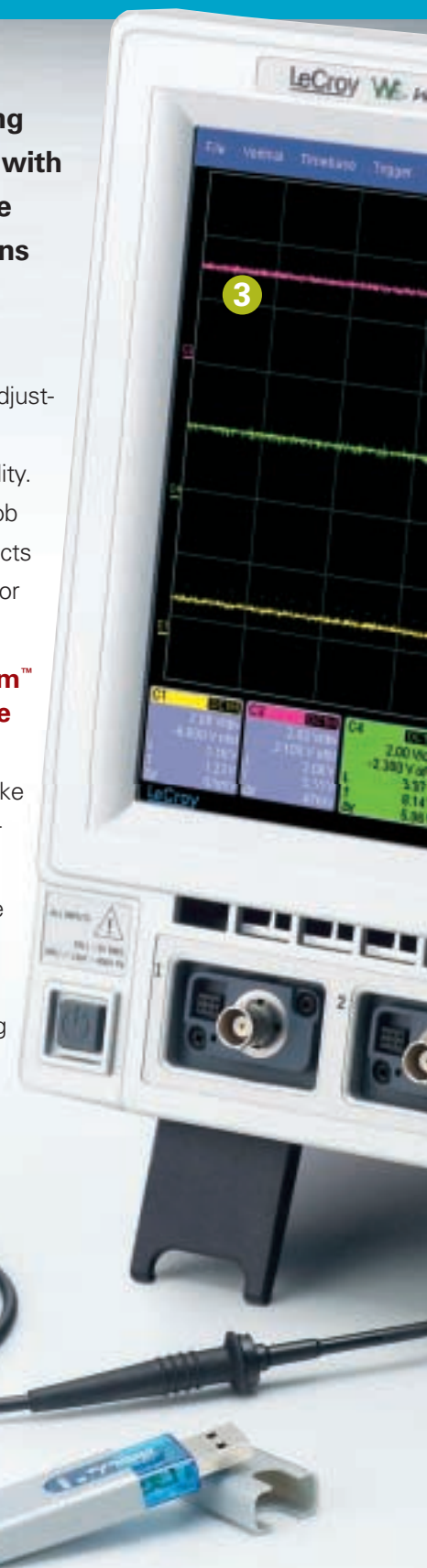
6. "Push" Knobs

Rotating knobs provide adjustment, but pushing them invokes further functionality. Push the trigger level knob and the oscilloscope selects the correct level setting for stable display.
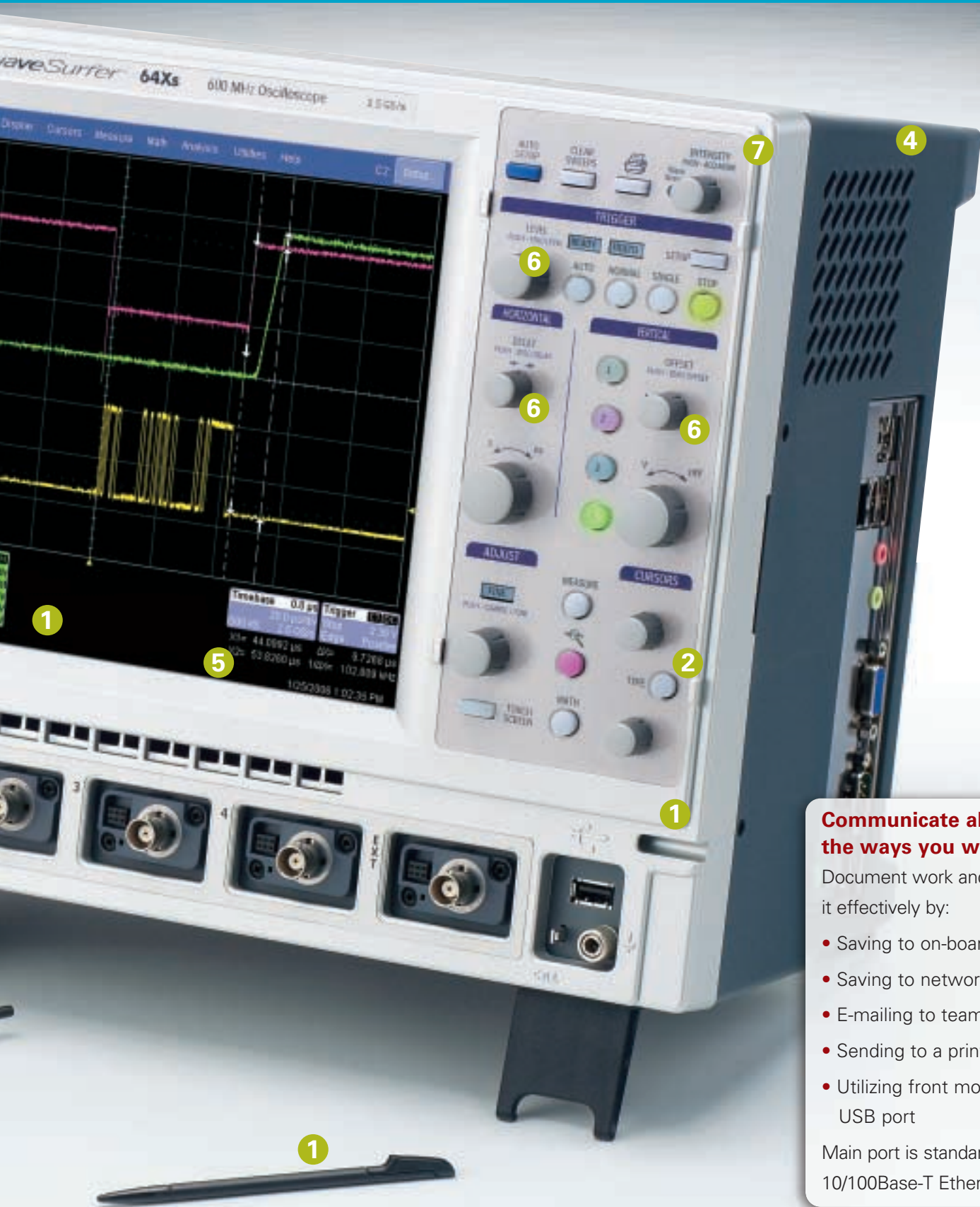
7. LeCroy WaveStream™ Fast Viewing Mode

This new viewing mode provides a lively, analog-like feel similar to a phosphor trace. Quickly adjust "trace" intensity with the front panel control, and toggle between LeCroy WaveStream fast viewing or real-time mode.

Superior Signal Capture

The WaveSurfer Xs oscilloscope beats short memory scopes hands down when it comes to the debugging of common circuit problems like clock/data issues and timing errors. It provides all the detail needed by delivering more than 100x the capture time at full sample rate compared to other oscilloscopes in its class. It effectively eliminates the trade-off between high sample rate and long capture time.

Communicate all the ways you want

Document work and share it effectively by:

- Saving to on-board hard drive
- Saving to network drive
- E-mailing to team members
- Sending to a printer
- Utilizing front mounted USB port

Main port is standard 10/100Base-T Ethernet.

WaveSurfer Xs Applications and Accessories

High performance probes are an essential tool for accurate signal capture. Consequently LeCroy offers an extensive range of probes to meet virtually every application need. Optimized for use with LeCroy oscilloscopes, these probes set new standards for responsiveness and signal detection.

ADP305, ADP300

Leading Features:

- 20 MHz and 100 MHz bandwidth
- 1,000 V_{rms} common mode voltage
- 1,400 V_{peak} differential voltage
- EN 61010 CAT III
- 80 dB CMRR at 50/60 Hz
- LeCroy ProBus® system only

PPE1.2KV, PPE2KV, PPE4KV, PPE5KV, PPE6KV, PPE20KV

Leading Features:

- Suitable for safe, accurate high-voltage measurements
- 1.2 kV to 20 kV
- Works with any 1 MΩ input oscilloscope

CP030/31

Leading Features:

- 30 A_{rms} continuous current
- 50 or 100 MHz bandwidth
- Measure pulses up to 50 A_{peak}
- Small form factor accommodates large conductors with small jaw size
- LeCroy ProBus system

AP031

Leading Features:

- Lowest priced differential probe
- 15 MHz bandwidth
- 700 V maximum input voltage
- Works with any 1 MΩ input oscilloscope

AP033/AP034

Leading Features:

- 500 MHz/1 GHz Bandwidth
- 10,000:1 CMRR
- Wide dynamic range, low noise
- LeCroy ProBus System

HFP 1000

Leading Features:

- 1 GHz bandwidth, 0.7 pF input capacitance
- Interchangeable tips for a variety of probing needs
- Hands free probing with probe holder
- AutoColor ID matches probe color to channel
- LeCroy ProBus system

MS-32 Mixed Signal Oscilloscope Option

The LeCroy MS-32 is the first mixed signal testing solution that combines 4 analog channels with 32 digital channels. This powerful measurement capability is ideal for the testing of 16-bit embedded controllers where all 16 ADDR and 16 DATA lines can be viewed at one time. LeCroy's long memory (32 Mpts total, or 1 Mpts/Ch) delivers highly detailed signal information, while standard oscilloscope tools like cursors, measurement parameters, and zooming make debugging simple.

Specifications

	WaveSurfer 44xs	WaveSurfer 42xs	WaveSurfer 64xs	WaveSurfer 62xs
Bandwidth (at probe tip)	400 MHz	400 MHz	600 MHz	600 MHz
Rise Time	875 ps	875 ps	625 ps	625 ps
Input Channels	4	2	4	2
Display	10.4" Color flat-panel TFT-LCD, 800x600 SVGA, Touch Screen			
Sample Rate (single-shot)	2.5 GS/s (all channels)			
Sample Rate (RIS mode)	50 GS/s			
Standard Record Length	2 Mpts/Ch (all channels)			
Standard Capture Time	up to 800 μs at full sample rate			
Vertical Resolution	8 bits			
Vertical Sensitivity	2 mV/div – 10 V/div (1 MΩ); 2 mV/div – 1 V/div (50 Ω)			
Vertical (DC Gain) Accuracy	±1.0% of full scale (typical); ±1.5% of full scale, ≥ 10 mV/div (warranted)			
BW Limit	20 MHz, 200 MHz			
Maximum Input Voltage	50 Ω: 5 V_{rms}, 1 MΩ: 400 V max (DC + Peak AC: ≤ 5 kHz) (CAT 1)			
Input Coupling	50 Ω: DC, GND; 1 MΩ: AC, DC. GND			
Input Impedance	1 MΩ//16 pF, or 50 Ω+/-1%			
Probing System	BNC or ProBus			
Probes	One PP009 per channel (standard)			
Timebase Range	200 ps/div – 1000 s/div (roll mode from 500 ms/div to 1000 s/div)			
Timebase Accuracy	10 ppm			

Triggering

Standard	Edge, Glitch, Width, Logic (Pattern), TV/Composite Video
Advanced (WS Xs-ADVTRIG)	Runt, Slew Rate, Interval, Dropout, Qualified (State or Edge)

Measure, Zoom, and Math Tools

Standard Parameter Measurement	Amplitude, Area, Base (Low), Delay, Duty, Fall Time (90%-10%), Fall Time (80%-20%), Frequency, Maximum, Mean, Minimum, Overshoot+, Overshoot-, Period, Peak-Peak, Phase, Rise Time (10%-90%), Rise Time (20%-80%), RMS, Skew, Standard Deviation, Top (High), Width+, Width –.
Zooming	Use front panel QuickZoom button, or use touch screen or mouse to draw a box around the zoom area.
Standard Math	Operators include Sum, Difference, Product, Ratio, and FFT (up to 25 kpts with power spectrum output and rectangular, VonHann, and FlatTop windows). 1 math function may be defined at a time.
Extended Math (WS Xs-MathSurf)	Adds the following additional math functions: Absolute Value, Averaging (summed and continuous), Derivative, Envelope, Enhanced Resolution (to 11 bits), Floor, Integral, Invert, Reciprocal, Roof, Square, and Square Root. Also adds chaining of two math functions, rescaling to different units, and 1Mpt FFTs.

Ordering Information

Product Description	Product Code
WaveSurfer Digital Oscilloscopes	
600 MHz, 2.5 GS/s, 4ch, 2Mpts/Ch DSO with 10.4" Color Display.	WaveSurfer 64Xs
600 MHz, 2.5 GS/s, 2ch, 2Mpts/Ch DSO with 10.4" Color Display.	WaveSurfer 62Xs
400 MHz, 2.5 GS/s, 4ch, 2Mpts/Ch DSO with 10.4" Color Display.	WaveSurfer 44Xs
400 MHz, 2.5 GS/s, 2ch, 2Mpts/Ch DSO with 10.4" Color Display.	WaveSurfer 42Xs

Included with Standard Configuration
÷10 HiZ 500 MHz Passive Probe (Total of 1 Per Channel)
Getting Started Manual and Quick Reference Guide
CD-ROMs containing Utility Software
Standard Ports: 10/100Base-T Ethernet, USB 2.0 (5), SVGA Video out, Audio in/out, RS-232
Protective Front Cover
Standard Commercial Calibration and Performance Certificate
3-Year Warranty

General Accessories	
Keyboard Accessory	WSXs-KYBD
Optical Mouse Accessory	WSXs-MOUSE
External GPIB Accessory	WS-GPIB
Hard Carrying Case	WSXs-HARDCASE
Soft Carrying Case	WSXs-SOFTCASE
Rack Mount Accessory	WSXs-RACK
Accessory Pouch	WSXs-POUCH

Mounting Accessories	
Clamp Mounting Stand	WSXs-MS-CLAMP

Local Language Overlays	
German Front Panel Overlay	WSXs-FP-GERMAN
French Front Panel Overlay	WSXs-FP-FRENCH
Italian Front Panel Overlay	WSXs-FP-ITALIAN
Spanish Front Panel Overlay	WSXs-FP-SPANISH
Japanese Front Panel Overlay	WSXs-FP-JAPANESE
Korean Front Panel Overlay	WSXs-FP-KOREAN
Chinese (Tr) Front Panel Overlay	WSXs-FP-CHNES-TR
Chinese (Simp) Front Panel Overlay	WSXs-FP-CHNES-SI
Russian Front Panel Overlay	WSXs-FP-RUSSIAN

Product Description	Product Code
Software Options	
Advanced Trigger Package	WSXs-ADVTRIG
Extended Math Package	WSXs-MATHSURF
Electrical Telecom Mask Test Package	WSXs-ET-PMT
Windows Lockout SW Option	WSXs-LOCKOUT

Hardware and Software Application Options	
32 Digital Channel Oscilloscope Mixed Signal Option	MS-32*

*MS-32 is compatible with WSXs 4-channel model oscilloscopes only.

Probes and Probe Accessories Options	
1 GHz, 0.7 pF Active Probe (÷10), Small Form Factor	HFP1000
1 GHz Active Differential Probe (÷1, ÷10, ÷20)	AP034
500 MHz Active Differential Probe (x10, ÷1, ÷10, ÷100)	AP033
30 A; 100 MHz Current Probe – AC/DC; 30 A$_{rms}$; 50 A Peak Pulse	CP031
30 A; 50 MHz Current Probe – AC/DC; 30 A$_{rms}$; 50 A Peak Pulse	CP030
30 A; 50 MHz Current Probe – AC/DC; 30 A$_{rms}$ Peak; 50 A Peak Pulse	AP015
150 A; 10 MHz Current Probe – AC/DC; 150 A$_{rms}$; 500 A Peak Pulse	CP150
500 A; 2 MHz Current Probe – AC/DC; 500 A$_{rms}$; 700 A Peak Pulse	CP500
1,400 V, 100 MHz High-Voltage Differential Probe	ADP305
1,400 V, 20 MHz High-Voltage Differential Probe	ADP300
600 V/1.2 kV 10:1/100:1 200/300 MHz 5 MΩ/50 MΩ High-Voltage Probe	PPE1.2KV
2 kV 100:1 400 MHz 50 MΩ High-Voltage Probe	PPE2KV
4 kV100:1 400 MHz 50 MΩ High-Voltage Probe	PPE4kV
6 kV 100:1 400 MHz 50 MΩ High-Voltage Probe	PPE6kV
20 kV1000:1 100 MHz 50 MΩ High-Voltage Probe	PPE20kV
1 Ch, 100 MHz Differential Amplifier with Precision Voltage Source	DA1855A

Customer Service

LeCroy oscilloscopes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years.

This warranty includes: • No charge for return shipping • Long-term 7-year support • Upgrade to latest software at no charge

Available From

LeCroy

1-800-5-LeCroy
www.lecroy.com

**Local sales offices are located throughout the world.
To find the most convenient one visit www.lecroy.com**